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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/053,271	01/17/2002	Srinivas Tadepalli	S01.12-0815/STL 10262	1310

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EXAMINER

KLIMOWICZ, WILLIAM JOSEPH

ART UNIT PAPER NUMBER

2652

DATE MAILED: 05/12/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/053,271	Applicant(s) TADEPALLI ET AL.	
	Examiner William J. Klimowicz	Art Unit 2652	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 07 February 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☐ Claim(s) 1-8 and 11-23 is/are pending in the application.
4a) Of the above claim(s) 4-7, 13, 14, 17 and 18 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1, 2, 8, 11, 12, 15, 16, 19-21 and 23 is/are rejected.
- 7) ☒ Claim(s) 3 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date: _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date: _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Correction of Original PTOL-326

The Examiner notes that the Office Action Summary Sheet (PTOL-326) mailed with the Office action of November 17, 2004 inadvertently indicated in checkbox 5, that "Claims(s) 1-3, 8, 11, 12, 15, 16, 19-21 and 23 is/are allowed." As is self-evident from the body of the accompanying Office action mailed November 17, 2004, however, checkbox 6 should have been checked off indicating that the "Claims(s) 1-3, 8, 11, 12, 15, 16, 19-21 and 23 is/are rejected."

Claim Status

Claims 1-8 and 11-23 are currently pending.

Claims 4-7, 13, 14, 17, 18 and 22 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected invention, there being no allowable generic or linking claim. Applicant timely traversed the restriction (election) requirement in Paper No. 4 (filed September 25, 2003).

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1, 2, 8, 11, 12, 15, 16, 19-21 and 23 are rejected under 35 U.S.C. 102(e) as being anticipated by Shiraishi et al. (US 6,144,530).

As per claim 1, Shiraishi et al. (US 6,144,530) discloses a data storage device (e.g., “magnetic disk drive unit” - COL. 1, line 17) for storing and accessing data, the storage device comprising: a motor (not expressly shown, but inherently and necessarily provided in order to rotate the “magnetic disk” in the “magnetic disk drive unit” in order to fly the “slider” above the disk in a well known and recognized manner - COL. 1, lines 10-17); at least one movable medium (i.e., “magnetic disk” - COL. 1, line 13) coupled to the motor and capable of being moved by the motor and thereby generating a turbulent airflow (such as the airflow which is used in part for the air-cooled radiator member (23)); and a slider support (including (10)) formed of a track accessing arm (e.g., a “movable arm” - COL. 1, line 17) and a suspension (10) and comprising at least one surface (23) comprising at least two grooves (23a), each groove (23a) having a groove axis oriented substantially perpendicular to a mean airflow direction (in the aforementioned disk drive, air would impinge in a slightly skewed manner perpendicularly to grooves (23a) as the slider radially access the aforementioned magnetic disk) and separated from the other groove axis in a direction substantially parallel to the mean airflow direction so as to cause vortices in a turbulent airflow generated by the medium (“magnetic disk”) to be kept distant from the surface. That is, the structure of the air-cooled radiator (23) includes the grooves (e.g., 23a, 63a) which are perpendicular to air flow generated by the disk. The grooves are of a V-shape (e.g., see FIG. 6) and thus produce vortices above and away from the surface by the negative pressure pockets that interact with the turbulent airflow which impinges upon the multi-grooved structure.

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As per claim 2, wherein the surface (23) comprises at least three evenly spaced grooves (e.g., see, *inter alia*, FIG. 6).

As per claims 12 and 21, wherein the grooves are V-shaped (e.g., see, *inter alia*, FIG. 6).

As per claim 8, wherein the surface forms part of a suspension (e.g., see, *inter alia*, FIG. 3).

Additionally, as per claim 11, Shiraishi et al. (US 6,144,530) discloses a surface (15) for a component of a structure that supports a slider (12) in the data storage device, the surface (15) comprising: a first groove (23a or 63a) having a groove axis that is substantially perpendicular to a direction of expected mean air flow (see discussion of claim 1, *supra*); and a second groove (another groove of 23a or 63a) proximate the first groove and having a groove axis that is substantially perpendicular to the expected mean air flow (see discussion of claim 1, *supra*) and that is separated from the first groove axis in a direction that is substantially parallel to the expected mean air flow such that the first and second grooves cooperate to keep vortices in the air flow some distance from the surface (15).

As per claim 15, wherein the surface (15) forms part of a suspension (10).

As per claim 16 wherein the first groove borders the second groove (e.g., see, *inter alia*, FIGS. 3, 6).

Additionally, as per claim 19, excitation reduction means for reducing the excitation of the surface by causing eddies in the airflow to be moved away from the surface, is construed as corresponding to the structure (or equivalents thereof) in the Applicants' specification, corresponds to structure of Shiraishi et al. (US 6,144,530) which discloses at least two grooves (23a), each groove (23a) having a groove axis oriented substantially perpendicular to a mean

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airflow direction (in the aforementioned disk drive, air would impinge in a slightly skewed manner perpendicularly to grooves (23a) as the slider radially access the aforementioned magnetic disk) and separated from the other groove axis in a direction substantially parallel to the mean airflow direction so as to cause vortices in a turbulent airflow generated by the medium ("magnetic disk") to be kept distant from the surface. That is, the structure of the air-cooled radiator (23) includes the grooves which are perpendicular to air flow generated by the disk. The grooves are of a V-shape (see FIG. 6) and thus produce vortices above and away from the surface by the negative pressure pockets that interact with the turbulent airflow which impinges upon the multi-grooved structure.

As per claim 20, wherein the excitation reduction means comprises grooves (e.g., 23a, 63a) on the surface (15).

As per claim 23, wherein the grooves are evenly spaced (e.g., see FIGS. 3 and 6).

Response to Arguments

Applicants' arguments filed February 7, 2005 have been fully considered but they are not persuasive.

The Applicants allege by mere argument, without introducing evidence or providing a convincing line of scientific principle, that since Shiraishi et al. (US 6,144,530) remains silent with respect to keeping vortices in a turbulent airflow distant from a suspension surface, that Shiraishi et al. (US 6,144,530) does not anticipate the invention. More concretely, the Applicant seems to be inferring that although the *claimed* structure may be identical, unless the reference specifically and expressly recites the prescribed claimed function, then anticipation is not met.

The Examiner respectfully, but strenuously disagrees with Applicants' logic. More specifically, as set forth in the **claimed invention**, and as identically structurally shown and disclosed by Shiraishi et al. (US 6,144,530), a slider support (including (10)) is provided formed of a track accessing arm (e.g., a "movable arm" - COL. 1, line 17) and a suspension (10) and comprising at least one surface (23) comprising ***at least two grooves (23a), each groove (23a) having a groove axis oriented substantially perpendicular to a mean airflow direction*** (in the aforementioned disk drive, air would impinge in a slightly skewed manner perpendicularly to grooves (23a) as the slider radially access the aforementioned magnetic disk) ***and separated from the other groove axis in a direction substantially parallel to the mean airflow direction*** so as to cause vortices in a turbulent airflow generated by the medium ("magnetic disk") to be kept distant from the surface. ***That is, the structure of the air-cooled radiator (23) includes the grooves (e.g., 23a, 63a) which are perpendicular to air flow generated by the disk. The grooves are of a V-shape (e.g., see FIG. 6) and thus produce vortices above and away from the surface by the negative pressure pockets that interact with the turbulent airflow which impinges upon the multi-grooved structure.***

Thus, ***at least to some degree***, the identically claimed structure operating in an identical environment, in identically the same manner, is seen to cause the impacting air stream to be aerodynamically affected by the v-shaped grooves, which are perpendicular to airflow while in its operative state, such that the grooves provide a buffeting effect of air, thereby resulting in turbulent airflow to be kept distant from the surface of the suspension, at least to some degree. There is absolutely nothing in the claimed invention which in any way, shape or form, defines structurally over the disclosure of Shiraishi et al. (US 6,144,530) as it applies to the rejected

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claims. Moreover, the Applicants have failed to provide any evidence whatsoever (note that Attorney's arguments do not constitute evidence) which would run counter to the inherent principles of dynamic fluid flow impinging upon the V-shape structure in the manner prescribed by the functional language of the rejected claims, at least to some degree.

It is noted, however, that claim 3 has been indicated as containing allowable subject matter since there is a structural difference (based on the spacing of the grooves) which could possibly cause a large difference in the degree of causing turbulent airflow to be kept at a prescribed distance away from the suspension surface.

Allowable Subject Matter

Claim 3 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37

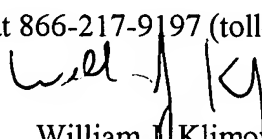
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CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to William J. Klimowicz whose telephone number is (571) 272-7577. The examiner can normally be reached on Monday-Thursday (6:30AM-5:00PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hoa T. Nguyen can be reached on (571) 272-7579. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


William J. Klimowicz
Primary Examiner
Art Unit 2652

WJK